

**INF3705**

May/June 2019

**Advanced Systems Development**

Duration 2 Hours

100 Marks

**EXAMINERS**

FIRST

SECOND

EXTERNAL

MR E TABANE

DR L MOTSI

PROF HS VENTER

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**Closed book examination**

**This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue**

This paper consists of 3 pages

**INSTRUCTIONS**

- 1 All answers must be written in the answer book provided
- 2 Number your answers and label your rough work clearly
- 3 The mark for each question is given next to the question
- 4 Marks are awarded for part of an answer, do not leave blanks

**GOOD LUCK!**

**Question 1****12 marks**

Name and explain in detail six (6) principles behind the Agile method

**Question 2****08 marks**

Discuss four (4) reasons why the productivity rate of programmers working as a pair might be more than half that of two programmers working individually

**Question 3****12 marks**

When modelling a system, analysts need to be aware of scope creep. Explain how a proper model of the system context can help prevent scope creep

**Question 4****08 marks**

Identify and discuss in detail four (4) attributes of good software

**Question 5****10 marks**

A small company has developed a specialized product that it configures specially for each customer. New customers usually have specific requirements to be incorporated into their system, and they pay for these to be developed. The company has an opportunity to bid for a new contract, which would more than double its customer base. The new customer also wishes to have some involvement in the configuration of the system. Explain why, in these circumstances, it might be a good idea for the company owning the software to make it open source

**Question 6****10 marks**

Explain in detail the five (5) important dimensions of dependability namely, availability, reliability, safety, security, and resilience

**Question 7****10 marks**

Describe in detail the three main types of software maintenance. Why is it sometimes difficult to distinguish between them?

**Question 8****10 marks**

Suggest how you would go about validating a password protection system for an application that you have developed. Explain the function of any tools that you think may be useful

**Question 9****10 marks**

List and discuss 5 of the 6 benefits of software reuse and explain why the expected lifetime of software should be considered when planning reuse

**Question 10****10 marks**

Why is system integration a particularly critical part of the systems development process? Suggest three sociotechnical issues that may cause difficulties in the system integration process